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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/579,075	06/21/2007	Hubert Koch	056226.57663US	1578

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EXAMINER
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WALCK, BRIAN D

ART UNIT	PAPER NUMBER
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1793

MAIL DATE	DELIVERY MODE
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08/14/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/579,075	<b>Applicant(s)</b> KOCH ET AL.	
	<b>Examiner</b> Brian Walck	<b>Art Unit</b> 1793	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 July 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 17-43 is/are pending in the application.
- 4a) Of the above claim(s) 40-43 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 17-39 is/are rejected.
- 7) ☒ Claim(s) 17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of group I, claims 17-39 in the reply filed on 7/13/2009 is acknowledged.
2. Claims 40-43 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 7/13/2009.

### ***Specification***

3. The disclosure is objected to because of the following informalities: the disclosure and claims consistently refer to the 13th element Al by the British standard spelling "aluminium." All instances of "aluminium" should be changed to "aluminum" to conform with standard United States practice.

Appropriate correction is required.

### ***Claim Objections***

4. Claim 17 is objected to because of the following informalities: claim 17 recites the limitation "an element or element group." Examiner suggests changing this limitation to "at least one element" for the sake of clarity. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. **Claims 17-18, 20-29, and 31-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 9-279280 to Okita (cited by applicant in IDS) in view of the evidentiary reference of the article titled "Aluminum and Aluminum Alloys" by Sanders from the Kirk-Othmer Encyclopedia of Chemical Technology.**

Regarding claim 17, Okita discloses an alloy comprising the following composition (Okita, abstract), which overlaps the instantly claimed composition:

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Element	Claimed wt%	Okita wt%	Overlap
Mg	1-8	0.2-2.0	1-2
Si	>1-4	0.15-1.5	1-1.5
Sc	0.01-<0.5	0.03-3.0	0.03-<0.5
Ti	0.005-0.2	0-0.2	0.005-0.2
Zn	0.001-<0.1	~0	Indeterminate
Zr	0-0.5	0-0.3	0-0.3
Mn	0-0.8	0-1.5	0-0.8
Cr	0-0.3	0-0.6	0-0.3
Cu	0-1.0	0-1.0	0-1.0
Fe	0-0.6	0-0.5	0-0.5
Be	0-0.004	~0	~0
Al	Balance	Balance	Balance

The only element that Okita does not explicitly disclose as overlapping the instantly claimed composition ranges is Zn. However, Okita also discloses that the alloy contains inevitable impurities (Okita, abstract). Sanders discloses that aluminum alloys contain Zn as an impurity in an amount below 100 ppm (Sanders, page 305, “11. Aluminum Alloys”), i.e. in an amount from 0-0.01 wt%, which overlaps the instantly claimed Zn content in the range of 0.001-0.01.

In the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a prima facie case of obviousness exists (see MPEP 2144.05 [R-5]). It

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would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected values for the composition of each element that lie within the instantly claimed ranges because Okita discloses the same utility throughout the disclosed ranges.

Note although Okita never specifically refers to the alloy as a "cast aluminum alloy," the limitation of "cast" does not appear to imply any structural or compositional limitations that the alloy of Okita does not possess.

Regarding claims 18, 20-29, and 31-39, the alloy of Okita overlaps the additional compositional limitations of instant claims 18, 20-29, and 31-39.

**9. Claims 17-29, 31-33, 36-37, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 1138794 A1 to Spanjers et al (cited by applicant in IDS) in view of the evidentiary reference of the article titled "Aluminum Alloys" by Lyle et al from Ullmann's Encyclopedia of Industrial Chemistry.**

Regarding claim 17, Spanjers discloses a cast aluminum alloy comprising the following composition (Spanjers, abstract), which overlaps the instantly claimed composition:

Element	Claimed wt%	Okita wt%	Overlap
Mg	1-8	2.7-6.0	2.7-6.0
Si	>1-4	0-1.4	1-1.4
Sc	0.01-<0.5	0-0.3	0.01-0.3
Ti	0.005-0.2	0-0.2	0.005-0.2
Zn	0.001-<0.1	0.10-1.5	Close at 0.1

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Zr	0-0.5	0-0.3	0-0.3
Mn	0-0.8	0.4-1.4	0.4-0.8
Cr	0-0.3	~0	~0
Cu	0-1.0	~0	~0
Fe	0-0.6	0-1	0-0.6
Be	0-0.004	~0	~0
Al	Balance	Balance	Balance

In the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a prima facie case of obviousness exists (see MPEP 2144.05 [R-5]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected values for the composition of each element that lie within the instantly claimed ranges because Spanjers discloses the same utility throughout the disclosed ranges.

Although the Zn concentrations of Spanjers does not technically overlap with the instantly claimed composition, a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties (See MPEP 2144.05 [R-5]).

Regarding claims 18-29, 33, 36-37, and 39, the alloy of Spanjers overlaps the additional compositional limitations of instant claims 18-29, 33, 36-37, and 39.

Regarding claims 31-32, Spanjers does not explicitly disclose the concentration of Cr in the alloy. However, Spanjers discloses that the alloy contains inevitable impurities (Spanjers, abstract). Lyle discloses that commonly produced aluminum alloys contain Cr as an impurity in an amount between 0.005-0.020 (Lyle, page 12, "3.1.1. Impurities in the Molten Metal"), which lies within the instantly claimed Cr content ranges of 0.001-0.3 or 0.0015-0.2. Therefore, the claimed Cr content would have been expected in the alloy of Spanjers as evidenced by Lyle.

**10. Claims 17-23, 28-33, 35, and 38-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,055,257 to Chakrabarti et al in view of the evidentiary references of the article titled "Aluminum and Aluminum Alloys" by Sanders from the Kirk-Othmer Encyclopedia of Chemical Technology and the article titled "Aluminum Alloys" by Lyle et al from Ullmann's Encyclopedia of Industrial Chemistry.**

Regarding claim 17, Chakrabarti discloses an alloy comprising the following composition (Chakrabarti, column 3, lines 21-40), which overlaps the instantly claimed composition:

Element	Claimed wt%	Okita wt%	Overlap
Mg	1-8	3.5-4.5	3.5-4.5
Si	>1-4	0-5	>1-4
Sc	0.01-<0.5	0.2-0.8	0.2-<0.5
Ti	0.005-0.2	~0	Indeterminate
Zn	0.001-<0.1	0-10	Indeterminate



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Zr	0-0.5	~0	~0
Mn	0-0.8	0-1.5	0-0.8
Cr	0-0.3	~0	~0
Cu	0-1.0	~0	~0
Fe	0-0.6	~0	~0
Be	0-0.004	~0	~0
Al	Balance	Balance	Balance

The only elements that Chakrabarti does not explicitly disclose as overlapping the instantly claimed composition ranges are Ti and Zn. However, Chakrabarti also discloses that the alloy contains inevitable impurities (Chakrabarti, column 3 lines 21-40). Sanders discloses that aluminum alloys contain Ti and Zn as an impurity in an amount below 100 ppm (Sanders, page 305, "11. Aluminum Alloys"), i.e. in an amount from 0-0.01 wt%, which overlaps the instantly claimed Zn content in the range of 0.001-0.01 and the instantly claimed Ti content in the range of 0.005-0.01.

In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists (see MPEP 2144.05 [R-5]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected values for the composition of each element that lie within the instantly claimed ranges because Chakrabarti discloses the same utility throughout the disclosed ranges.

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Note although Chakrabarti never specifically refers to the alloy as a “cast aluminum alloy,” the limitation of “cast” does not appear to imply any structural or compositional limitations that the alloy of Chakrabarti does not possess.

Regarding claims 18-23, 35, 38-39, the alloy of Chakrabarti overlaps the additional compositional limitations of instant claims 18, 20-29, and 31-39.

Regarding claim 30, Chakrabarti discloses that Gd may be present in an amount from 0.01-4 (Chakrabarti, column 8, lines 37-65), which overlaps the instantly claimed range of at least 0.001 % by weight gadolinium.

Regarding claim 28-29 and 33, Sanders discloses that aluminum alloys contain V and Cu as an impurity in an amount below 100 ppm (Sanders, page 305, “11. Aluminum Alloys”), i.e. in an amount from 0-0.01 wt%, which overlaps the instantly claimed V and Cu content ranges.

Regarding claims 31-32, Chakrabarti does not explicitly disclose the concentration of Cr in the alloy. However, Chakrabarti that the alloy contains inevitable impurities. Lyle discloses that commonly produced aluminum alloys contain Cr as an impurity in an amount between 0.005-0.020 (Lyle, page 12, “3.1.1. Impurities in the Molten Metal”), which lies within the instantly claimed Cr content ranges of 0.001-0.3 or 0.0015-0.2. Therefore, the claimed Cr content would have been expected in the alloy of Chakrabarti as evidenced by Lyle.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Walck whose telephone number is (571)270-5905. The examiner can normally be reached on Monday-Friday 9 AM-6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571)272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/  
Supervisory Patent Examiner, Art  
Unit 1793

/Brian Walck/  
Examiner, Art Unit 1793